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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GERRIT KONIJN

Appeal 2009-003358
Application 10/779,988
Technology Center 1700

Decided: September 17, 2009

Before CHARLES F. WARREN, TERRY J. OWENS, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

The Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1 and 3-14, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellant claims a separation tray, and states that it is useful in a column for separating liquid/gas mixtures (Spec. 1:1-5). Claim 1 is illustrative:

1. A separation tray suitable for being horizontally mounted in a normally vertical column, which separation tray comprises a normally horizontal upper wall and a normally horizontal lower wall defining an inner space between them; a means for admitting fluid to the inner space; a means for removing liquid from the inner space; a means for removing gas from the inner space; a plurality of primary separation devices within the inner space, for separating fluid into primary gas and liquid-enriched fluid, which primary separation devices comprise:

a normally vertical tubular conduit having at its lower end an inlet for fluid, which inlet is in fluid communication with the means for admitting fluid, and having at its upper end an outlet for primary gas, from which outlet an outlet conduit extends to a primary gas outlet opening in the upper wall, which primary gas outlet opening forms part of the means for removing gas;

a swirl-imparting means arranged in the conduit between the inlet for fluid and the outlet for primary gas, so as to cause, during normal operation, the formation of a layer of liquid-enriched fluid in an annular region adjacent the inner surface of the conduit downstream of the swirl-imparting means, which liquid-enriched fluid comprises secondary gas;

and which separation tray further comprises a means for removing and guiding liquid-enriched fluid from each of the primary separation devices to a secondary separation means for removing entrained liquid from secondary gas;

wherein the secondary separation means for removing entrained liquid from secondary gas is formed by the free inner space between the upper and lower walls, which free inner

space has in its lower part an outlet for liquid in fluid communication with the means for removing liquid and in its upper part an outlet for secondary gas, which extends to a secondary gas outlet opening in the upper wall, which secondary gas outlet opening is separate from the primary gas outlet opening and forms part of the means for removing gas, and wherein the means for removing and guiding liquid-enriched fluid surrounds each primary separation device and is arranged to admit all liquid-enriched fluid downwardly into the free inner space;

wherein the means for removing and guiding liquid-enriched fluid is arranged to admit all of the liquid-enriched fluid to the free inner space at a position within 30% of the spacing between upper and lower walls, counted from the lower wall.

The References

Sheinman	5,626,799	May 6, 1997
Schuurmans (EP '508)	EP 0 048 508 A2	Mar. 31, 1982
Artemov (DE '420)	DE 38 32 420 A1	Apr. 5, 1990
(as translated)		

The Rejections

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1 and 5 over DE '420; claims 3, 4 and 6-8 over DE '420 in view of EP '508; and claims 9-14 over DE '420 in view of EP '508 and Sheinman.

OPINION

We affirm the Examiner's rejections.

The Appellant states that the rejections of claims 1 and 3-14 are appealed (Notice of Appeal filed June 4, 2007). The Appellant, however, argues only the rejection of claim 1 (Br. 4-5). Because the rejections of claims 3-14 are not argued, those claims stand or fall with claim 1, which is the sole independent claim. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Issue

Has the Appellant shown reversible error in the Examiner's determination that DE '420 would have rendered prima facie obvious, to one of ordinary skill in the art, a device for removing and guiding liquid-enriched fluid, arranged to admit all of the liquid-enriched fluid to a free inner space at a position within 30% of the spacing between upper and lower walls, counted from the lower wall?

Findings of Fact

DE '420 discloses a device which uses centrifugal force provided by blades 11 in separating pipe 8 and blades 12 in separating pipe 9 to separate two-component mixtures such as wet steam (pp. 2, 3, 5 and 7; Fig. 1). Dry steam flows out of the top of separating pipe 9, and a steam/water mixture passes from separating pipe 8 through gap 10 between separating pipes 8 and 9 and then through downwardly-opening cap 14 into separation chamber 3, from which dry steam exits through opening 13 and water exits through side port 5 (pp. 5-7; Fig. 1). Separation chamber 3 is between lower (6) and upper (7) plates (p. 5; Fig. 1).

It is undisputed that the bottom of cap 14 in Figure 1 is located at about 3/8 (37.5%) of the distance from lower plate 6 to upper plate 7 (Ans. 3-4; Br. 5).¹ Regarding the position of the bottom of the Appellant's return skirt (45a, 45b, 45c; Spec. 11:11-15; Fig. 1), to which DE '420's cap 14 corresponds, the Appellant states (Spec. 7:1-11):

Suitably, the means for removing and guiding the liquid-enriched fluid to the free inner space has its outlet at a position within 50%, more preferably within 30% of the spacing between upper and lower walls, counted from the lower wall. In this way a

¹ There is no dispute as to whether DE '420's Figure 1 is drawn to scale.

sufficiently long travel distance for all of the secondary gas to outlets in the upper region of the free inner space is arranged, so that the residence time of the gas in the free inner space is above a certain minimum to allow settling out of the entrained liquid.

Analysis

The Appellant argues “that the advantage of the invention of Claim 1 over Artemov [DE ‘420] may include one or more of the following: liquid can not reach the secondary gas outlets on a direct trajectory, maximized use of free inner space, increased time available for separation of entrained liquid, and/or longer travel distance for secondary gas” (Br. 5).

As indicated by the Appellant’s Specification, those benefits are obtained when the bottom of the return skirt is within 50% of the distance from the lower to the upper wall (Spec. 7:1-11). Because the bottom of DE ‘420’s cap 14 is within that range, i.e., 37.5% of the distance from the lower to the upper plate, the Appellant’s disclosure indicates that DE ‘420’s device also provides those benefits. The Appellant does not allege that a 30% distance provides a benefit that is not provided by a 50% distance or any distance therebetween such as that of DE ‘420.

The Appellant argues that “Artemov does not teach or suggest any return skirt length, nor a range which could be modified by one of skill in the art” (Br. 5).

The Examiner finds that “the deeper the extension of the cap (14) toward the lower wall (6) of the separation tray, the greater the degree of separation, but also the higher the pressure drop across the tray” (Ans. 6), and that “[o]ne having ordinary skill in the pertinent art will thus determine the appropriate amount of cap extension based upon desired level of

separation and an acceptable pressure drop, which determines the amount of energy input required to operate the column” *Id.*

Because the Examiner’s finding is reasonable and has not been challenged by the Appellant, we accept it as fact. *See In re Kunzmann*, 326 F.2d 424, 425 n.3 (CCPA 1964). Accordingly, we are not persuaded by the Appellant’s argument that DE ‘420 would not have suggested a return skirt length range to one of ordinary skill in the art. *See KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of ordinary creativity, not an automaton”).

Conclusion of Law

The Appellant has not shown reversible error in the Examiner’s determination that DE ‘420 would have rendered prima facie obvious, to one of ordinary skill in the art, a device for removing and guiding liquid-enriched fluid, arranged to admit all of the liquid-enriched fluid to a free inner space at a position within 30% of the spacing between upper and lower walls, counted from the lower wall.

DECISION/ORDER

The rejections under 35 U.S.C. § 103 of claims 1 and 5 over DE ‘420, claims 3, 4 and 6-8 over DE ‘420 in view of EP ‘508, and claims 9-14 over DE ‘420 in view of EP ‘508 and Sheinman are affirmed.

It is ordered that the Examiner’s decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

kmm

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